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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,137	01/03/2005	Kazuya Urata	1617.52	9514

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EXAMINER	
BALDWIN, GORDON	
ART UNIT	**PAPER NUMBER**
1775	

DATE MAILED: 06/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/520,137	URATA ET AL.	
	Examiner	Art Unit	
	Gordon R. Baldwin	1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *01312005, 03292005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2,3,5,8,9,10,11,13,16 are rejected under 35 U.S.C. 102(b) as being anticipated by Martin (Pat. No. 4,289,812).

Consider claims 1, 5, 9 and 13, Martin teaches the use of synthetic resins being employed as protective coatings on metals (Col. 1 lines 16-20) and that some of the most widely used resins are DGEBA (diglycidyl ether/bisphenol-A) resins. Furthermore, the epoxide groups of DGEBA resin are reacted with the amine components of the quaternary salt. (Col. 4, lines 1-5) The diglycidyl ether may be preformed by reacting two molecules of epichorohydrin with one molecule of the bisphenol-A. (Col. 2 lines 5-30) Martin also teaches the use of DER-331, which is a diglycidyl ether of bisphenol-A, which is prepared through a two-step reaction of epichorohydrin with bisphenol-A. (Col. 9 lines 20-45) Since no cyanos are mentioned, Martin is considered to teach the use of cyanogens-free coatings.

While Martin does not clearly state that the substrate is Cu-Sn, Martin does state that the coating may be applied to metals such as ferruginous metals (Col. 3 lines 1-5) and stainless steel (Col. 50 lines 30-40) and with these examples, Martin's teachings are considered to include Cu-Sn substrates. Regarding claim 9, it does not specifically require that the substrate must be Cu-Sn.

Additionally, the portion of claim (9) concerning, "where a substrate to be coated is immersed in said bath and subsequently subjected to an electrical current to obtain

said copper-tin coating" is considered to be a process-by-process limitation and "[even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." (In re Thorpe, 227 USPQ 964,966). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious different between the claimed product and the prior art product (*In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983), MPEP 2113).

Consider claims 2, 3 and 10, Martin teaches the used of the amine derivatives including piperazine. (Col. 19, lines 55-69 and Col. 20 lines 1-5)

Consider claim 8 and 16, Martin teaches a solution for two DGEBA-type resins that are made by reactions of DER with bisphenol-A. The final mixture, which started with H_3PO_4 was neutralized to a pH of 9 with triethyamine, in addition to no cyanos added. (Col. 32 lines 15-39)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4, 7, 9, 10, 11, 12, 13, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin (Pat. No. 4,289,812) as applied above, and further in view of Kaneko (Pat. No. 6,416,571 B1).

Consider claim 4 and 12, Martin teaches the disclosed invention, including a glycidyl ether compound, but does not specifically teach the use of a Cu-Sn alloy to be plated, however Kaneko teaches the use of Cu-Sn alloy without a cyanic ion with a reaction product of an amine derivative and an epihalohydrin. (Abstract) Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the coating of Martin with plating of Kaneko to be able to produce a coating that can impart a silver-white, gold copper color to the substrate.

As for the molecular ratios, it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the molecular ratio of the epihalohydrin and the glycidyl ether for the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Consider claim 7 and 15, Kaneko teaches the use of methane sulfonic acid as a bath stabilizer. (Col. 6 lines 37-42)

Consider claim 9, Martin teaches the use of synthetic resins being employed as protective coatings on metals (Col. 1 lines 16-20) and that some of the most widely used resins are DGEBA (diglycidyl ether/bisphenol-A) resins. Furthermore, the epoxide groups of DGEBA resin are reacted with the amine components of the quaternary salt. (Col. 4, lines 1-5) The diglycidyl ether may be preformed by reacting two molecules of epichorohydrin with one molecule of the bisphenol-A. (Col. 2 lines 5-30) Martin also teaches the use of DER-331, which is a diglycidyl ether of bisphenol-A, which is prepared through a two-step reaction of epichorohydrin with bisphenol-A. (Col. 9 lines 20-45) Since no cyanos are mentioned, Martin is considered to teach the use of cyanogens-free coatings.

Kaneko teaches the coating of a Cu-Sn alloy, without a cyanic ion with a reaction product of an amine derivative and an epihalohydrin. (Abstract)

Additionally, the portion of claim (9) concerning, "where a substrate to be coated is immersed in said bath and subsequently subjected to an electrical current to obtain said copper-tin coating" is considered to be a process limitation and "[even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." (In re

Thorpe, 227 USPQ 964,966). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious different between the claimed product and the prior art product (*In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983), MPEP 2113).

Consider claim 10 and 11, Kaneko teaches the use of piperazine as an amine derivative. (Col. 6 lines 15-20)

Consider claim 13, Martin teaches that the diglycidyl ether may be preformed by reacting two molecules of epichorohydrin with one molecule of the bisphenol-A. (Col. 2 lines 5-30) Martin also teaches the use of DER-331, which is a diglycidyl ether of bisphenol-A, which is prepared through a two-step reaction of epichorohydrin with bisphenol-A. (Col. 9 lines 20-45)

Consider claim 16, Martin teaches a solution for two DGEBA-type resins that are made by reactions of DER with bisphenol-A. The final mixture, which started with H_3PO_4 was neutralized to a pH of 9 with triethyamine, in addition to no cyanos added. (Col. 32 lines 15-39)

Claims 6 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin (Pat. No. 4,289,812) as applied above, and further in view of Bosso (Pat. No. 3,975,346).

Consider claims 6 and 14, Martin teaches the claimed invention except where the additive (A) is a polyglycidyl ether of an adduct of ethylene glycol added with

epichlorohydrin. However, Bosso teaches the preference of polyglycidyl ethers polyphenols, which are the reaction products of bisphenol A and epichlorohydrin. (Col. 3 lines 1-20) Additionally, Bosso teaches that the polyglycidyl ethers maybe derived from ethylene glycol. (Col. 3 lines 25-33) It would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the resin coating of Martin with the coating of Bosso using ethylene glycol to product coatings with increased hydrolytic stability (Col. 1 lines 55-65)

Claims 6 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin (Pat. No. 4,289,812), Bosso (Pat. No. 3,975,346) and further in view of Kaneko (Pat. No. 6,416,571 B1).

Consider claims 6 and 14, Martin teaches the claimed invention except where in the additive (A) is a polyglycidyl ether of an adduct of ethylene glycol added with epichlorohydrin. However, Bosso teaches the preference of polyglycidyl ethers polyphenols, which are the reaction products of bisphenol A and epichlorohydrin. (Col. 3 lines 1-20) Additionally, Bosso teaches that the polyglycidyl ethers maybe derived from ethylene glycol. Col. 3 lines 25-33)

Martin does not specifically teach the alloy to be plated is an Cu-Sn alloy. However, Kaneko does teach a pyrophosphoric acid bath to be used in a Cu-Sn alloy plating without cyanic ion and containing an amine derivative. (Abstract) Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the coating of Martin with the adduct of ethylene glycol of Bosso and the Cu-Sn alloy of Kaneko to provide a metal coating with increased hydrolytic

stability (Bosso Col. 1 lines 55-65) and to produce a coating that can impart a silver-white, gold copper color to the substrate.

Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin (Pat. No. 4,289,812).

Consider claim 4 and 12, while Martin does not teach the molecular ratios of the applicant, it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the molecular ratio of the epihalohydrin and the glycidyl ether for the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Response to Arguments

Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon R. Baldwin whose telephone number is (571)272-5166. The examiner can normally be reached on M-F 7:45-5:15.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GRB

JENNIFER C. MCNEIL
SUPERVISORY PATENT EXAMINER
6/12/06